Exhibit A

Pending Claims
Following Examiner's Amendment From 1/15/02 Interview

41. An article comprising an optical fiber with a refractive index grating having a length and a reflection wavelength λ at a given temperature within an operating temperature range; wherein the optical fiber is attached to a support member, said support member having a negative coefficient of thermal expansion selected such that λ is substantially temperature independent over said operating temperature range.

42. An article according to claim 41, wherein the support member has a negative coefficient of thermal expansion selected such that $|d\lambda/dT|$ is approximately 10% of $d\lambda/dT$ of an otherwise identical comparison grating that is not attached to a support member.

43. An article according to claim 41, wherein the operating temperature range includes 20°C.

44. An article according to claim 43, wherein the operating range includes at least a portion of the range -20° to 65°C.

45. An article according to claim 41, wherein the optical fiber is a silica-based optical fiber.

46. An article according to claim 41, wherein the optical fiber is attached to the support member at least over the length of the refractive index grating.

47. Article according to claim 41, wherein said optical fiber is attached to the support member at bonding platforms.

48. Article according to claim 47, wherein said bonding platforms are configured such that said refractive index grating is spaced from said support member.

49. Article according to claim 47, wherein said bonding platforms comprise a material selected to have a coefficient of thermal expansion that is substantially matched to the coefficient of thermal expansion of the optical fiber.

50. Article according to claim 41, wherein said support member comprises a first negative thermal expansion coefficient member bonded to a second positive thermal expansion coefficient member, said first and second members selected to provide a support member having a desired value of the negative thermal expansion coefficient.

52. (twice amended) An athermal optical device comprising:

a negative expansion substrate having an upper surface; and

a thermally sensitive, positive expansion optical component affixed to the substrate upper surface at at least two spaced apart locations;

wherein the optical component is an optical fiber grating and the negative expansion substrate is selected to provide thermal compensation to the thermally sensitive, positive expansion optical component.

54. (amended) An athermal optical fiber grating device comprising:

a negative expansion substrate having an upper surface and first and second ends;

an optical fiber affixed to the substrate upper surface at at least two spaced apart locations; and

a grating defined in the optical fiber between and at a distance from each substrate end;

wherein the substrate provides thermal compensation to the grating.

55. (amended) An athermal optical fiber grating device comprising:

a negative expansion substrate having an upper surface and first and second ends;

an optical fiber affixed to the substrate upper surface at at least two spaced apart locations; and

a grating defined in the optical fiber between and at a distance from each substrate end;

wherein the at least two spaced apart locations comprise first and second spaced apart locations, the first location being between the grating and the first substrate end and the second location being between the grating and the second substrate end.

56. The device according to claim 54, wherein the fiber is affixed by a layer of attachment material.

57. The device according to claim 56, in which the attachment material is one of a polymer, a frit and a metal.

58. The device according to claim 57, in which the polymer is an epoxy adhesive.

59. (amended) An athermal optical fiber grating device comprising:

a negative expansion substrate having an upper surface and first and second ends;

an optical fiber affixed to the substrate upper surface at at least two spaced apart locations; and

a grating defined in the optical fiber between and at a distance from each substrate end;

wherein:

(a) the at least two spaced apart locations comprise first and second spaced apart locations, the first location being between the grating and the first substrate end and the second location being between the grating and the second substrate end; and

(b) the device further comprises a bonding pad having a coefficient of expansion intermediate between that of the fiber and the substrate

mounted between the optical fiber and the substrate at each of the first and second locations, the optical fiber being bonded to each bonding pad and each bonding pad being affixed to the substrate.

60. (twice amended) Apparatus comprising:

(a) a substrate comprising a material having a negative coefficient of thermal expansion; and

(b) a fiber grating affixed to the substrate;

wherein the material having a negative coefficient of thermal expansion is selected so that the substrate provides thermal compensation to the fiber grating.

61. (amended) In an apparatus having a fiber grating affixed to a device where the device provides thermal compensation to the fiber grating, the improvement wherein the device comprises a material having a negative coefficient of thermal expansion, said material being selected so that the device provides thermal compensation to the fiber grating.